

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (original) A sensor- and/or separating element for the semi-permeable diffusion of molecules comprising:

- a) a mechanically stable substrate having at least one through-opening,
- b) a perforated membrane which is fluid-tightly connected to the substrate and extends at least across the through-opening; and
- c) at least one semi-permeable layer which is applied in firmly adhering manner to one or both sides of the membrane at least in the perforated region thereof, wherein the semi-permeable layer or semi-permeable layers is/are secured mechanically in the adjacent perforations and/or by chemical-structural and/or physical adhesion and/or adhesive intermediate layers and/or covalent surface bonding to the adjacent surfaces of the membrane, optionally of the substrate, or of a metallic film optionally additionally applied to one or both sides of the membrane.

Claim 2. (original) A sensor- and/or separating element according to claim 1, wherein the substrate and the membrane are made of similar or different materials from the group consisting of mechanically stable, inorganic and organic materials.

Claim 3. (original) A sensor- and/or separating element according to claim 2, wherein the substrate and the membrane are made of similar or different organic polymers.

Claim 4. (original) A sensor- and/or separating element according to claim 3, wherein the organic polymers are from the group consisting of polycarbonate, polystyrene, polytetrafluoroethylene and polyamide.

Claim 5. (original) A sensor- and/or separating element according to claim 2, wherein the material of the membrane differs from the material of the substrate in respect of its processibility by a predetermined chemical and/or physical processing means, such that the substrate can be removed by the processing means whereas the membrane substantially cannot be attacked by the processing means.

Claim 6. (original) A sensor- and/or separating element according to claim 5, wherein the materials of the substrate and the membrane are chosen from the group consisting of silicon, one or more silicon compounds and/or a material containing silicon and/or another semiconductor material.

Claim 7. (original) A sensor- and/or separating element according to claim 6, wherein the substrate is of silicon and the membrane is of epi-silicon.

Claim 8. (original) A sensor- and/or separating element according to claim 1, characterized in that the membrane is an ultra-thin membrane whose thickness ranges between 20 μm and 100 nm.

Claim 9. (original) A sensor- and/or separating element according to claim 1, characterized in that the semi-permeable layer is a polymer layer, preferably composed of an organic, preferably adherent, polymer.

Claim 10. (currently amended) A sensor- and/or separating element according to claim 1, characterized in that the perforated membrane has perforations ~~have~~ having a diameter or maximum diameter which ranges between 0.1 and 50 μm , ~~preferably 1 and 10 μm .~~

Claim 11. (original) A sensor- and/or separating element according to claim 1, characterized in that the optional metallic film extends over a region of the substrate or over a region of the membrane underlaid by the substrate.

Claim 12. (original) A sensor- and/or separating element according to claim 1, characterized in that a metallic film or a plurality of metallic films is/are provided, which consist(s) of individual segments which are separate from one another and each of which is provided with at least one electric terminal.

Claim 13. (original) A sensor- and/or separating element according to claim 11, characterized in that a further metallic film or one or more further double layer(s) of metallic film plus semi-permeable layer are applied to the exterior of one or both of the semi-permeable layers, where optionally a final metallic film is applied to the outermost semi-permeable layer and where all the further metallic films are perforated in the region of the through-opening.

Claims 14-34 (withdrawn)

Claim 35 (new) A sensor- and/or separating element according to claim 1, characterized in that the perforated membrane has perforations having a diameter or maximum diameter which ranges between 1 and 10 μm .